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Sex Differences in Mortality Statistics in Relation to Employment Status and Marital Status

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SEX DIFFERENCES IN MORTALITY STATISTICS
IN RELATION TO EMPLOYMENT STATUS AND
MARITAL STATUS

by

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A thesis submitted to the Department of Psychology
in partial fulfillment of the requirements
for the degree of Master of Arts in
Counseling Psychology

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Abstract

Male mortality rates exceeded female rates in every death type and the sex differential increased from 1970 to 1980 in every death type except homicides. The findings in this study suggest that marital and employment factors contribute to sex differences in mortality for suicidal and accidental deaths. Being employed was associated with fewer suicidal and accidental deaths for females than for males. Being married was associated with fewer suicidal and accidental deaths for males, while marital status had no relationship to suicidal and accidental deaths for females. Due to these relationships it might be inferred that the expanding sex differential in suicidal and accidental mortality rates is associated with the spiraling divorce rate and the dramatic increase in female employment. Results relative to homicidal deaths appear ambiguous and do not offer support for the hypothesis that marital and employment factors contribute to the observed sex differences in homicidal death rates.

Sex Differences in Mortality Statistics in Relation to Employment Status and Marital Status

Marital and employment factors are seldom discussed in relation to the long recorded differences in male and female mortality rates in which females have consistently had an advantage. Yet there are increasing indications that this relationship deserves inquiry.

Differences in male and female longevity have been documented in the United States since the 1840's (Retherford, 1975, p. 10). Females have outlived males for as long as records have been maintained and the female advantage has become increasingly large in recent years. From 1910 to 1965 the differences between male and female life expectancy increased from 3.6 to 7.0 years, an increase of 94.5% (Retherford, p. 3). By 1978 the difference had increased to 7.7 years (U. S. Bureau of the Census, 1980, p. 72).

If sociocultural factors affect mortality, and there is growing evidence that they do, then marital status and employment status would almost certainly be among the most crucial factors. It is difficult to imagine anything more important to life satisfaction and individual well being than the choices persons make about marital partners and how they decide to spend the majority of their waking hours.

One would logically expect major social and cultural factors to affect suicidal and homicidal deaths. The relationship of these factors to accidental and natural deaths would seem more difficult to discern. There is developing evidence, however, that both

accidental and some natural deaths are highly correlated with socio-cultural factors (e.g., Gordon, 1949; Gove, 1973; Hacker & Suchman, 1963; Paerregaard, 1975; Phillips & Segal, 1969; Verbrugge, 1976).

In recent years the United States has experienced many socio-cultural changes including a spiraling divorce rate (see Appendix I), a decrease in the number of traditional American families, and changes in women's roles accompanying an unprecedented increase in the numbers of females joining the labor force (Giele, 1978; Wright, 1978; U. S. Bureau of the Census, 1980; also see Appendix I). Research regarding the relationships of marital and employment factors to the sex differential in mortality seems in order.

Many types of explanations have been offered for the sex differential in mortality. Biological explanations have been proposed, as well as a variety of sociocultural explanations.

Biological and Physiological Factors in Relation to Mortality

Researchers have offered a variety of explanations for the sex differential in mortality. In 1948, Hamilton reviewed 60 studies regarding the sex differential in the animal kingdom. He found that females were documented to have the advantage in longevity in almost every species and he concluded that biological superiority must account for the discrepancy.

Madigan made the same deduction in 1957 in a study of Brothers and Sisters of Roman Catholic religious orders devoted to teaching. Since cultural pressures were equalized between the sexes in the

protected environment of the convent, Madigan concluded that biological factors were more important than sociocultural ones when he found that females continued to have a distinct advantage in mortality.

A biological explanation was also offered by Naeye, Burt, Wright, Blanc, and Tatter (1971), who hypothesized that the female advantage was a result of the female possession of two X chromosomes as opposed to the male possession of one X chromosome and one Y chromosome. Since the X chromosome is larger and contains many more genes than the Y chromosome, females have increased odds for survival. According to the chromosome theory, the two X chromosomes possessed by females afford them added protection against the debilitating and life-threatening effects of a defective gene since a matching gene is present in their X chromosome. Inasmuch as only one normal gene is required for adequate functioning, the female has a distinct advantage over her male counterpart.

Epstein (1965) and Preston (1976) concluded that hormonal differences protect women from the development of coronary heart disease which consequently accounts for a significant proportion of the sex differential in mortality. Preston determined that coronary heart disease accounted for up to 33.4% of the sex differential (p. 131), and he attributed this difference to the presence of greater levels of estrogen in females.

One researcher (Rasmuson, 1971), offered a biological explanation for accidents and indicated that the sex differential in accidental deaths, particularly at younger ages, has a tremendous

impact on the total sex mortality differential. She stated that "indirect evidence indicates that most profound character traits are genetically and physiologically determined" (p. 48).

Rasmuson suggested that an innate tendency to be more physically active than females and an "inherent love of adventure" (p. 48) causes males to be more prone to have accidents.

Retherford (1975), however contends that a biological explanation for the sex mortality differential is incongruent with the facts and states, "For the increase in human sex mortality differentials over the past 50 years, it is clear that the genetic code varies too slowly for biological differences between sexes to have contributed significantly. Changes in the environment must therefore be responsible" (p. 10). Retherford believes that environmental effects such as the decline in maternal mortality since the turn of the century and the smoking of tobacco have contributed significantly to the sex differences in mortality. He reported that approximately 47% of the sex differential in 1962 could be accounted for by smoking. It was also stated that 75% of the increase in the sex differential between 1910 and 1962 was explained by smoking (p. 104). It should be noted, however, that the sex ratio for smoking has changed considerably since 1962. By 1970, more females than males were regular smokers (DHEW, 1975). This fact should logically reduce the differential between males and females in the future if Retherford's hypothesis has any validity.

Combined physiological and environmental explanations for the sex differential in mortality also have been offered by various researchers. The decline of maternal mortality in combination with the improved detection and treatment of cancer of the reproductive organs which differentially benefited females (Enterline, 1961; Retherford, 1975) is such an explanation. Another explanation is that the decline in female obesity (while males concurrently increased) in recent years has caused females to be less susceptible to heart disease (Marks, 1960; Preston, 1970).

Sex Role Training and Interpersonal

Factors in Relation to Mortality

The majority of researchers have attributed the sex differential in mortality to sociocultural factors. In recent years, sex role factors such as those regarding health practices and socially significant events such as marriage and employment have been increasingly discussed in relation to sex differences in mortality (Kobrin and Hendershot, 1977).

Sex Role Training Factors

According to some researchers, sex role training affects the way females and males behave when feeling ill. Verbrugge (1976) proposed that sex role training affects the way persons perceive their symptoms, the importance they assign to them, and their willingness to take appropriate action. It has been well

documented that females use health services more readily and are more likely to follow treatment recommendations than males (Chesler, 1972; Lewis & Lewis, 1977; Nathanson, 1975; Phillips & Segal, 1969). Verbrugge says these factors may promote longevity for females and that "men could benefit enormously if their sex role changes carried with them some of the protective effects associated with a diminished 'macho' stance" (p. 868).

It has been reported that sex role training accounts for the greater inclination of males to participate in dangerous and "foolhardy" acts to prove their courage (Rasmuson, p. 48). They engage in smoking and drinking behavior for the same reasons and these behaviors also tend to contribute to an early death.

Interpersonal Factors

In addition to sex role factors, interpersonal and job-related factors have been cited abundantly in the literature as influential in the sex differential, particularly in suicidal, accidental, and homicidal deaths. Beck, Lester, & Kovacs (1973) reported that suicide attempts by men are motivated largely by such social factors as the loss of a job or legal difficulties. Women's attempts, however, tend to be associated with interpersonal dilemmas.

The lack of interpersonal ties has been one of the frequently cited explanations for suicide in the literature (Durkheim, 1951; Gurin, Veroff & Feld, 1960; Johnson, 1979; Kobrin & Hendershot, 1977).

Gove (1973) proposed that accidental and homicidal deaths, as well as suicides, are at least an indirect result of the lack of meaningful social ties. He reported that the lack of ties "frequently results in carelessness and recklessness which may lead to death" (p. 49). This theory is supported by Suchman's research (1970) and by several other investigations cited in the literature (e.g. Gordon, 1949; Hacker & Suchman, 1963; MacIver, 1961; Porterfield, 1960), all of which found accidents to be related to a variety of social factors and not randomly distributed across subgroups of the population.

Psychological Factors in Relation to Mortality

Gove explained that social factors have a strong influence on mortality because they affect one's psychological state. Psychological factors are important since they influence an individual's desire to continue living, which in turn can affect the degree of life-threatening behavior displayed by that individual. These hypotheses are substantiated by many investigations that have found many affective disorders and schizophrenias to be highly related to mortality (Kramer, Pollack, Redick, & Locke, 1972; Noreik, 1975; Sainsbury, 1968; Tsuang, 1978).

In a recent study in Florida, Markush (1977) found that 27% of the total mortality of a group of subjects without any known health problems could be attributed to mental factors. Of the eight mental scales examined by Markush, five showed a

significant association with mortality: mood, depression, somatic symptoms of anxiety, perception of health, and selected psychopathologic symptoms (p.1393).

It would seem reasonable to conclude that sociocultural factors that affect one's psychological well being would also affect mortality. Some modern researchers (e.g. Mushkin, 1979; Verbrugge, 1976) have predicted that changes in the lifestyles of women, such as their increased participation in the labor force, will exacerbate the amount of stress in their daily lives and decrease their longevity, thereby reducing the sex differential presently documented in America. Other investigators have indicated that the increased employment and improved status of women will have a beneficial effect on their psychological state and further reduce women's mortality rates, consequently widening the already expansive sex differential (Cumming, Lazar, & Chisholm, 1975; Gibbs & Martin, 1971).

Interaction of Employment and Sex Role

Factors in Relation to Mortality

There is a paucity of direct research available on the relationship of employment and mortality. However, the relationship of employment to a host of psychological variables will be explored, based on the assumption that one's psychological state influences mortality.

Male Sex Roles and Employment

Men have never had a choice regarding employment and sex roles. Since Europeans came to America, it has been the responsibility of the man to provide for his family. If he failed in that role, there were always devastating social and economic consequences. Male success was, and is, measured in terms of a man's career achievements. Rasmuson (1971) declared that men experience more pressures than women since they have always had to balance the demands of career and family, whereas women's commitments traditionally have been limited to the family.

The feminist movement resulted in new role definitions for women which have consequently thrust men into even greater conflicts and demands (Hacker, 1957; Mussen, 1962). Men are now expected, in many instances, to share responsibilities equally with women at work and at home. As a result, men are expected to be nurturing with children, interpersonally skillful, and responsible for many household duties, all of which engender severe conflict with the traditional, career-oriented male role.

Darley (1976) pointed out the conflicting demands of society that seemingly place men in no-win situations. She indicated that if a man devotes a lot of time and emotional energy to domestic activities, he will be doubly sanctioned since he is not only engaging in a type of activity that is

not highly valued in our culture, but he is also violating traditional sex role expectations. Yet, the modern male is now being expected to fulfill those domestic and interpersonal obligations, and it appears that society is creating mixed role expectations for men. On the one hand, a man is expected to be emotionally tender, domestic, and skillful in interpersonal relations, and on the other, he is expected to be objective, calculating, and achievement oriented.

It has been said that technological society has made modern man a slave to machines and time clocks. He has adapted to an environment that is not suitable for humans (Ellul, 1964). The portrayal of men's roles by Ellul and the preceding researchers is somewhat bleak and pessimistic.

Pleck (1976) stated that men need "deeper emotional contacts" (p. 161) and less emphasis on work to meet their basic human needs. Traditional male roles are restrictive and destructive. Pleck contended that "there is ample reason to believe that men have considerable gains to make in loosening and changing their roles" (p. 162).

The traditional role for males has only recently been questioned, and the transition period will probably be lengthy and difficult. Any improvement in mortality for males is thus not expected in the near future. When and if new sex roles emerge, it is hoped that males will have socially acceptable alternatives to inflexible and preassigned scripts which are not readily adjusted to meet individual needs.

Female Sex Roles and Employment

Female roles, according to some researchers are, by comparison to males, carefree and protected. Rasmuson (1971) reported that most women participate in traditionally female occupations which are "less physically tiring, less wearing, and less responsibility laden than dominantly male occupations" (p. 53). However, many researchers claim that women, whether in the housewife role or in the labor force, have many disadvantages to overcome. Radloff (1975) indicated that both housewives and working wives are more depressed than working husbands.

Disadvantages of the housewife role. The difficulty of the housewife rôle has been a prevalent topic in recent literature. In a review of four studies, Ehlich concluded in 1973 that "the acceptance of the so-called female rôle can literally make a woman mentally ill" (p. 270). Radloff concurred and added that the learned helplessness fostered by the housewife rôle may be more significant in the cause of the illness than the dissatisfaction with housework.

Women who accept the homemaker role as their primary vocation sometimes live vicariously through their husbands and children. They have little opportunity for individuation and often judge their personal worth by the successes of their family members. Frequently they are dependent on their husbands for both economic survival and validation as worthwhile individuals.

Johnson (1979) believes this state of affairs leads to "low self-esteem, passivity,...submissiveness, and obedience" in many women (p. 145). In the author's review of the literature, it was discovered that many studies indicate such characteristics as those listed above are often found in victims of depression or self-destructive behavior.

There are few redeemable features in terms of the housework itself according to some researchers. Oakley (1974) found that the average work week for the 40 London housewives in the investigation was 77 hours (p. 183) and the majority of the women in the study were dissatisfied with their role. Complaints were focused on the boring, trite, and constant nature of housework which often prompted feelings of devaluation and isolation. Giele's assessment of the situation of housewives is similar, as reflected in the comment, "Their work goes unpaid and is regarded no more challenging than that of a 'parking lot attendant' or 'animal trainer' in the Dictionary of Occupational Titles" (1978, pp. 123-124).

There is little opportunity for social reinforcement in such a role. Sarbin and Allen (1968) pointed out that the homemaker/parent role is an assigned role which is in contrast to the achievement role that most men follow. With assigned roles, successful role enactment reaps only neutral evaluations whereas failure to enact the role prompts severe social punishment. Conversely, achievement roles reap abundant social and

financial reinforcement when successful role enactment is accomplished. It is concluded, therefore, that women have substantially fewer opportunities for receiving positive evaluation than men and at least equal opportunities for failure.

Another criticism of the housewife role in the literature is that it is both undefineable and indeterminate (Ferree, 1976b; Gergen, 1971; Oakley, 1974). Society does not delineate the component role actions of a "good" housewife. The expectations are limitless and indiscriminate which causes the housewife to be exceptionally vulnerable to devastating criticism.

Loneliness and social isolation are also common themes in the literature. In 1966, Gavron studied 96 urban housewives and discovered they had very few meaningful social contacts, which caused them a great deal of dissatisfaction. Other researchers (e.g. Gans, 1967; Ferree, 1976b; Oakley, 1974) obtained similar results and brought credence to the idea of the desolate housewife.

With all the negative aspects of the homemaker role previously discussed, it is understandable that 47% of Ferree's 135 Boston housewives felt that they had not been afforded a fair chance in life and that 35% wanted their daughters to be "mostly different" from themselves (1976b, p. 434). It is also understandable why Japan, until 1960, had the highest

ratio of female suicide in the world (Iga, Yamomota, & Noguchi, 1975) since that country represented the epitome of female submissiveness to husband and family. In that society serving marriage and family was seen as the sole purpose in living for a female. Failure as a wife and/or mother frequently resulted in total despair, hopelessness, and suicide.

However, one major study has challenged the many reports that the housewife role is undesirable. In 1978, Wright reviewed six major national surveys on the comparative satisfactions of housewifery and employment for women and concluded that "both work outside the home and fulltime housewifery have benefits and costs attached to them" (1979, p. 312). There were no consistent or significant differences in patterns of life satisfactions between employed women and housewives and it was inferred that housewives were equally as gratified as working women in spite of the abundant literature that reports the contrary. Wright commented, "We do not wish to promulgate the 'myth of the happy homemaker'" (p. 312). But they also found the portrayal of the desolate and socially isolated housewife mythical and concluded that "Neither of these myths is especially well suited to a full understanding of the situation of women in contemporary American society" (p. 312).

Nevertheless, the majority of researchers have found the traditional female role as housewife to be unappreciated, undervalued, unrewarding, and even destructive. As Ferree so aptly stated, "Many housewives pay a considerable price in unhappiness"

(1976a, p. 80) for their choice of roles. Many contemporary women are combating this ominous destiny by joining the paid labor force.

Disadvantages of a dual role. Giele (1978) stated that "the most noticeable change (because of the women's movement) has occurred at the bottom rung where persons make individual decisions whether or not to participate in the work force" (p. 90). But Rose (1951) claimed that the very fact women have a choice causes them problems since they are likely to later question their choice. In addition, she indicated that working for pay, like domestic activities, will not reap much social reinforcement for a woman. Rose contended that if a woman chooses the housewife role, she will suffer the social isolation and devaluation associated with that role, but if she chooses the employment role she is regarded as a deviant by society, and there are painful repercussions for that choice. However, it should be noted that, in recent years, the woman who works ought not to be regarded a deviant since the latest figures indicate that 51.7% of all women aged 16 years or older are now employed for pay as compared to 33.9% in 1950 (U. S. Department of Labor, 1981, p. A6) when Rose's book was being written.

The observations noted by Rose in 1951 regarding society's reaction to the employed woman with a family continue to be found in the literature. Rose indicated that society concludes

that a woman who chooses to work is probably devoid of certain feminine traits that are necessary for being a good wife and mother. In 1976, Darley advised that the primary role for a woman, by society's standards, is the traditional one, and this role is contradictory to the achievement role inherent in a career. The author recognized the disadvantage associated with the housewife role but found the combination of work and the traditional role even more hazardous. Darley warned against combining the two roles and summarized the situation by saying, "You simply can't win" (p. 93).

Other researchers have supported that stance. Keller (1974) and Horner (1972) attested that the traditional female role places value on nurturing others and forbids the direct expressions of assertiveness and achievement needs which are necessary for attaining a successful career. Therefore, if a woman does manage success in a career, she has automatically violated appropriate sex role norms. It is assumed that success in her occupation precludes the possibility of adequately fulfilling her domestic role, even if she happens to possess the necessary nurturing, feminine traits. She is thought to be somewhat less than feminine because she has chosen to work rather than to devote full-time energy to her family. This situation unleashes role conflict, strain, and insecurity in the working woman.

According to Darley, the role conflict is particularly intense when the woman freely chooses to work as opposed to her working because of economic necessity. If she works because she must, she is somewhat excused from the disapprobation of society.

If the married, employed female overcomes the previously mentioned disadvantages, she still must typically face the added burden of fulfilling the double commitments of her domestic duties and her job without a lot of help from her husband in most situations (Vanek, 1974; Walker, 1980). This dual role often overloads her and causes her undue stress. Wright (1978) stated that the lives of these women are expected to be "more pressured, more hectic, more conflict-ridden, and in consequence, less satisfying than the lives of the full-time housewives" (p. 302). As Sweet (1973) noted, time is the most desired resource for working women.

Another problem regarding female employment is that the majority of working women remain in low-status and low-paid positions which are considered extensions of the traditional female role (Giele, 1978; Gross, 1968; Oppenheimer, 1970; Polachek, 1975). In a review of the literature, Dixon (1976) discovered that females were still "greatly underrepresented relative to men...among managers, officials, and proprietors" (p. 28) and that sex typing in occupations was almost as prevalent in 1974 as it was at the turn of the century. The discrepancy

in male-female pay has also remained stable. Why is it, then, that an increasing number of women are choosing to fight such odds?

Advantages of a dual role. Many women are forced into the labor market for financial survival, but countless others opt freely for paid work. It is apparent that at least for some women, the advantages of working outweigh the disadvantages. Some researchers claim the migration to the work force is an attempt to escape from the desolation and obscurity of the housewife role (Cumming et al., 1975; Giele, 1978; Work in America, 1973). Cumming et al. summarizes, "Overwork is debilitating, underpayment is humiliating, and incompatible expectations are frustrating, but perhaps none of these very real pressures are as damaging as isolation, loneliness and lack of social integration" (p. 468). It is possible that the main advantages of working for some women are social and personal rather than economic. Sweet (1973) noted many satisfactions for the career woman ranging from the feeling of independence to personal interactions with others.

In 1963, Nye revealed that employed women were more satisfied with their lives than housewives. During the investigation, interviews were conducted with 2,300 women from small towns in the state of Washington. Employed women reported that they were more content with their work and with their communities than housewives.

Several other researchers have also indicated that employed women are more satisfied. They reported greater happiness, more self-confidence, and stronger feelings of competency than traditional females (e.g. Ferree, 1976b; Hoffman, 1974). It is noteworthy that in 1972, Rivkin found that employed females reported fewer illnesses and disabilities than nonemployed females.

There are some indications that attitudes towards working women are changing in a positive direction and that social disapproval is decreasing. Women who work are beginning to be viewed as both psychologically healthy and attractive (Helson, 1972). In a review of several surveys from 1964 through 1974, one group of researchers concluded that women's attitudes had changed substantially in favor of female employment and similar sex role issues (Mason, Czajka, & Arber, 1976). Bayer (1975) and Scanzoni (1976) found analogous attitude changes in their surveys.

Employment for women with children has also been increasingly approved by society (Mason et al., 1976). The possibility of positive effects on children as a result of having a working mother has also been considered by some investigators (Hoffman & Nye, 1974).

The feminist movement has achieved modest gains for working women. Laws are being changed, women are joining labor unions, and better jobs and promotions are being attained by some women because of the pressures employers are experiencing

to promote equality (Ferris, 1971; Giele, 1978). It is certain that the women's movement has influenced the growing numbers of women who are entering the job market. And the changes in attitude that have occurred in recent years probably have resulted from the many women who have chosen a dual role, thereby validating that role choice. Rose predicted in 1951 that social approval for working women would gradually be achieved as more and more women joined the work force and the dual role became the norm rather than the exception (p. 96). The effects of this increased normative support will undoubtedly relieve some of the role conflict and stress associated with combining family and career. It has even been suggested that this trend might offer additional protection to women against suicide (Cumming et al., 1975; Gibbs & Martin, 1971).

The protection-by-work theory is a direct contradiction to the one offered earlier by Verbrugge (1976) that predicted detrimental effects on the mortality of women as a result of increased labor force participation. The rebuttal to the Verbrugge theory can be partially substantiated by recent research that indicated female administrators are significantly less susceptible to stress than their male colleagues (Tung, 1980). Perhaps this could be explained by the fact that males still feel they have no choice but to adhere to an achievement role. But at least some working females still have a choice, thereby reducing the intensity of their pressure to succeed.

Summary

In summary, it appears that many women are finding a greater sense of personal satisfaction and independence by joining the labor force. This seems to be true in spite of the fact that the majority of women are in low-paying and sex-typed occupations which seem to be extensions of the traditional female role and even though they must typically carry the burden of household duties in addition to their job responsibilities.

Perhaps the choice of roles per se for American women will be favorable in its effects on their psychological well being and consequently on their mortality rates in types of deaths affected by psychological factors. Since both the employment and housewife roles are socially acceptable in the 1980's, it is expected that each woman will choose the role that is most suitable to her individual needs.

Interaction of Marital and Employment

Factors in Relation to Mortality

Some researchers have reported a reciprocal effect between employment and marital status. Cumming et al. (1975) found a significant interaction effect between employment and marital status in their study of suicides in British Columbia from 1961 to 1971. Married, divorced, widowed, and single women

all had lower suicide rates when they were employed than when they were not employed. But it is noteworthy that this effect was much greater for married persons. It appears that married women received more benefit from working than their unmarried counterparts. The authors attributed this finding to the increased interpersonal relations accorded by the combination of marriage and employment. This hypothesis contradicts much of the recent literature which suggests that modern American women are in grave distress whether or not they work and whether or not they marry. Cumming et al. implied that being married and employed simultaneously offers a great deal of protection from unhappiness, despondency, and suicide.

Marital Factors in Relation to Mortality

Advantages of Being Married

It has been documented in the literature for years that married persons have lower rates of mortality than unmarried persons (e.g. Gove, 1973; Ortmeyer, 1974; Retherford, 1970; Sheps, 1961; Stack, 1980; Woodrow, Hastings, & Tu, 1978). This is consistent with reports that married persons are happier and have lower rates of mental illness than single persons (Glenn, 1975; Gove, 1972; Kramer, 1967; Thomas & Locke, 1963; United States Public Health Service, 1975).

In 1956, Shurtleff proposed that married life offered increased protection from death because of the stability inherent in the institution of marriage. Married persons tend to eat, sleep, work, and conduct all of life's activities with more regularity than unmarried persons. They also have stronger inducement to take care of themselves because of their families.

Similarly, Durkheim (1951) indicated that marriage offers a type of social integration and hypothesized that this integration protects against untimely death, particularly suicide. Social ties cause individuals to have a sense of reciprocal obligation which makes life worth living. They also help individuals maintain a sense of personal identity.

This social integration theory was also supported by Kobrin and Hendershot in 1977. In a national investigation, they documented substantially lower rates of mortality among married persons. In addition they found, as Durkheim did in 1951, that married persons with children appeared to be more protected than those without children. The investigators attributed these findings to the protective effect of increased social ties. Closer scrutiny revealed a difference in mortality rates for unmarried persons according to the quality of social ties they maintained. For example, those unmarried persons who were heads of households (unmarried parents or persons living with roommates - high status tie) had lower rates of

mortality than those who were either living alone or living as a family dependent (low status tie). It is noteworthy, though, that females had lower rates when living alone than when living as family dependents, whereas males appeared to be better situated when living as family dependents.

One possible explanation for this phenomena is that masculine sex roles have not adequately prepared men for domestic activities. Cooking, washing, ironing, and other necessary domestic tasks have been designated as female obligations for centuries. This fact creates a crisis situation for men who suddenly find themselves living alone.

Differential Advantages of Being Married According to Sex

Many studies report sex differences in mortality according to marital status. Although marriage is generally associated with lower mortality rates for both sexes, the strength of that association is much more pronounced for males than for females (e.g. Kobrin & Hendershot, 1977; Ortmeyer, 1974; Retherford, 1975). One explanation for this, according to Retherford, is that society prescribes fewer behavioral limits for unmarried men than for unmarried women and these limits are protective to physical health. Unmarried women are more likely than their male counterparts to have quieter lifestyles which promote healthier patterns of living. Another partial explanation offered by Retherford for the sex differential is that unmarried women have more extensive personal relationships beyond their nuclear families than men and these relationships are presumed to provide security, particularly when making the transition

from the married to the unmarried state.

Gove (1973) also documented a sex differential in mortality according to marital status. He attributed the difference to "the nature of marital roles in our society" (p. 65). Consistent with other research, he found both sexes had lower rates of mortality when married, and males benefited substantially more from being married than females. He demonstrated this effect to be particularly powerful in types of death where psychological variables are more likely to influence mortality. Gove reported that widowed men were five times as likely to commit suicide as married men. In contrast, widowed females were only two times as likely as married females to die by suicide. The suicidal rates of single and divorced persons followed a similar pattern. This pattern of male-female differences remained constant among all types of mortality that are affected by social factors (homicide, suicide, accidents, and some natural deaths). Conversely, in deaths assumed to be unrelated to social factors, like leukemia, there were virtually no differences between males and females according to marital status. Gove suggested that variations in marital status do indeed have an effect on mortality, and that sex differences within those variations are a crucial facet of this effect. Gove concludes "This research...suggests that there are important differences between the sexes, namely, that males

find being married more advantageous than do females and being single, widowed, or divorced more disadvantageous" (p. 61).

Disadvantages of Being Married

Several recent articles have attested to the difficulties of marriage and the advantages of remaining single for women. In a review of the literature Gove (1972) noted that women were more likely to be emotionally disturbed than men, but he acknowledged that married women were solely responsible for that difference. Never married and divorced males had a higher rate of mental illness than single females in 73% of the studies examined. Widowed males had higher rates than widowed females in 78% of the studies.

In 1977, Gove and Geerken acquired similar results. Married women, as compared to married men, had higher rates in every category of mental illness. The authors attributed these findings to the role overload and role conflict many married women are experiencing in modern times.

Females were found to be less happy with their marriages than males in 1960 (Gurin et al.). But single women professed to be happier than single men. Other investigators have also documented this claim (Bradburn & Caplovitz, 1965). Gurin et al. charged the restrictive and frustrating role of the traditional married female with perpetuating unhappiness for women in modern marriages.

Bernard (1972) actually cautioned about the effects of marriage on women. The author declared that men and women have conflicting expectations and desires when entering marriage. Bernard hypothesized that women's unmet expectations often cause unhappiness which leads to a variety of emotional and physical symptoms for females.

In summary, a number of researchers have found marriage to be disadvantageous to females while remaining protective in its effects for males. Most investigators attribute this state of affairs to sex role factors which either restrict or overload the typical married female.

Arguments Against the Existence of a Marital Differential in Mortality

Although Retherford (1975) acknowledges the large variations in the sex mortality differential according to marital status, he concluded that changes in marital status during this century have not contributed significantly to the increase in that differential. He attributed a large share of the sex differential to cigarette smoking. He drew the conclusion that marriage accounted for only a small portion of the differential by calculating the effect of universal marriage on the sex differential in the United States. He predicted that universal marriage would reduce the differential by only 8.4% since most people were already married at the time of his study. Therefore, the effects would be minimal.

Other investigators have disputed the validity of earlier studies that documented variations in mortality by marital status. Jacobsen (1959) and Sheps (1961) both challenged the studies based on the 1950 census data and vital statistics on the grounds that the divorced and widowed population was underrepresented in the census due to a reluctance to report an unmarried status. Gove's (1973) data seems to discredit these reports by reexamining the earlier data and by pointing out that unmarrieds had markedly higher mortality rates in only certain types of death (those assumed to be related to social factors). In types of death in which no correlation with social factors would be expected, no differences in mortality were found. Gove contended that the effects of underestimations would have remained constant in all types of mortality if the contentions by Sheps and Jacobsen were true. It would seem logical to assume, however, that in future investigations the reluctance to report a single status would not be a problem because of the increased normative support for single persons and the accompanying change of societal attitudes regarding these persons (Roper Organization, 1974).

Another argument which challenges previously recorded marital differentials in mortality is the hypothesis of selection. This hypothesis purports to account for the differences in mortality according to marriage by contending

that only healthy persons are selected for marriage, leaving those unhealthy persons who are more likely to die prematurely in the single category, consequently causing marital factors to be viewed spuriously as etiological in nature. Kraus and Lilienfeld examined this hypothesis in 1959 and discovered that even when the selection effect is presumed strong, it could only account for a small proportion of the excess mortality in their study of widowed persons.

Other researchers have examined the selection hypothesis, but the results have been ambiguous because of the difficulties inherent in testing out such a theory (Bradburn, 1969; Ciocca, 1940; Sheps, 1961; Zalokar, 1960). Gove presented some of the strongest evidence against the hypothesis in 1973. He contended that the selection hypothesis would be partially noticeable among persons who had long term illnesses before they died, since the selection process would have had ample time to operate. But Gove found very little difference in mortality by marital status among these individuals, thereby casting doubt on the entire theory. He warned, however, that this evidence is not conclusive and the possibility of a selection effect still exists, although it appears to be unlikely. Gove concluded "It is going to take considerable work, with better data, before the relative importance of these explanations can be adequately assessed" (p. 64).

Summary

In summary, many researchers have reported that marriage is negatively related to premature mortality. Some researchers have disputed this marital effect but such arguments have often been discredited or at least called into question. It seems likely that marriage offers a protective effect at least for males. Several investigators have documented that marriage is more beneficial to males than females in recent years. Recently it has been reported that marriage can be even detrimental for females. This claim appears to be mostly conjectural at this point since there is a lack of supporting research. But one could justify concluding from the research that males benefit more from marriage than females. If true, then the spiraling divorce rate and the trend to remain single would have a particularly detrimental relationship to male mortality while having little or no correlation with female mortality.

Purpose of the Study

The present study is exploratory in nature. The major purpose is to examine the relationships of sex differences in mortality to employment status and marital status in Duval County in 1970 and 1980.

Mortality, unless otherwise specified, will refer to suicidal, accidental, and homicidal deaths, which represent forms of premature mortality. Premature mortality allows more logical inferences

concerning the relationships of marital and employment factors to mortality since many natural deaths occur as a result of old age or factors that cannot be directly related to social factors.

The majority of previous research has supported the theory that employed females are happier and healthier than unemployed females. Therefore, it is predicted that being employed will be associated with lower mortality rates for females, while less relationship would be expected for employed males since available research indicates that males are not only locked into restrictive employment roles but are experiencing even more demands because of changes in women's roles. Males appear to be in a state of transition and, until new roles emerge, it is expected that they will have appreciably higher mortality rates than females. Hence, it is expected that the increase in the number of females participating in the labor force (see Appendix I) will be related to a decrease in female mortality rates over time, while male rates are expected to remain high.

Marital factors, as well as employment factors, appear to relate to the mortality rate of males and females differently. It has been fairly well documented that unmarried men have a higher mortality rate than married men. Available literature has not consistently substantiated higher rates of mortality for unmarried females. Therefore, it is predicted that being unmarried will be associated with higher mortality rates for males, while little or no relationship is predicted for females. If true, then the

spiraling divorce rate (see Appendix I) will most likely be related to increased male mortality rates over time, while having little relationship to female death rates.

Duval County census data is not available at the present time but state and national data for divorce and employment rates are available. The divorce rate in Florida has increased from 5.3% in 1970 to 9.6% in 1980 (see Appendix I). The rate of employed females in the United States has increased from 42.6% of females aged 16 and over in 1970 to 51.1% of females aged 16 and over in 1980 (U. S. Dept. of Labor, 1981, p. A6). There is every indication that similar trends will be observed in Duval County. Based on these facts and on the arguments presented on preceding pages, it is expected that female mortality in Duval County will decrease from 1970 to 1980, largely due to the increase in employed females, while male mortality will increase in those death types, largely due to the increase in unmarried males. The sex differential in mortality rates in Duval County would consequently increase over the decade.

Based on the preceding assumptions, the following hypotheses will be investigated in this study:

- (1) Sex Main Effect - Males will have more suicidal, accidental, and homicidal deaths than females.
- (2) Year Main Effect - There will be more deaths in 1980 than in 1970. This increase would be expected due to several

factors that are extraneous to the focus of this study, i.e., increased funding at the county morgue and population growth.

- (3) Marital Status Main Effect - Married persons will have fewer suicidal, accidental, and homicidal deaths than unmarried persons.
- (4) Employment Status Main Effect - Employed persons will have fewer suicidal, accidental, and homicidal deaths than unemployed persons.
- (5) Sex X Year Interaction Effect - The difference between male and female mortality in suicidal, accidental, and homicidal deaths will increase from 1970 to 1980. Males in 1980 will have more suicidal, accidental, and homicidal deaths than females in 1980 and males or females in 1970.
- (6) Marital Status X Year Interaction Effect - Unmarried persons in 1980 will have more suicidal, accidental, and homicidal deaths than unmarried persons in 1970 and married persons in 1970 or 1980.
- (7) Employment Status X Year Interaction Effect - The increase in employed females from 1970 to 1980 will decrease their mortality rate and thereby influence the overall Employment Status X Year interaction.
- (8) Sex X Marital Status Interaction Effect - Unmarried males will have more suicidal, accidental, and homicidal deaths than either married males or married and unmarried females.

- (9) Sex X Employment Status Interaction Effect - Employed females will have fewer suicidal, accidental, and homicidal deaths than either unemployed females or employed and unemployed males.
- (10) Marital Status X Employment Status Interaction Effect - There seems to be no a priori reason to predict any interaction between employment and marital factors.

Method

Subjects

The subjects were every person who died in 1970 or 1980 for whom a subsequent blood alcohol analysis was performed in the Duval County Medical Examiners Office. Blood alcohol analyses were routinely performed for all admissions to the morgue except for those persons who had been hospitalized for over 72 hours at the time of death or those who were under the age of five. All persons who died suicidal, accidental, or homicidal deaths in Duval County were brought to the Medical Examiners Office. In addition, persons who died natural deaths which were unattended or suspicious were also brought to the morgue for subsequent examination.

The sample included 1,579 persons. The ages of the subjects ranged from 5 years to 111 years, with a mean age of 49.2 years and a standard deviation of 20.3. The males had a mean age of 47.7 years, and the females had a mean age of 52.6 years. There were 171 suicidal deaths, 434 accidental deaths, 165 homicidal deaths, 784 natural deaths and 25 undetermined deaths.

The sample was composed of 1,016 white persons and 563 black persons with approximately equal proportions of whites and blacks during both years in which the data were collected.

Procedure

Data were collected at the Duval County Medical Examiners Office and the Bureau of Vital Statistics in Jacksonville,

Florida using a standard form (see Appendix II). Information collected included the type of death, sex, race, age, marital status, usual occupation, occupation at time of death, and the presence of substances at the time of death (if alcohol, level of substance was included).

Individual occupational listings were placed into groups according to categories used by the U. S. Bureau of the Census (U. S. Government Printing Office, 1971) with military persons, housewives, students, unemployed children and unemployed adults listed in additional categories. Retired persons were also listed separately for the occupation at time of death.

For the purposes of this investigation the employment status categories were defined by combining all paid vocations to form the employed category and all unpaid vocations to form the unemployed category, using information from the occupation at time of death to categorize the employment group. The marital status categories were formed by combining the currently married and common law categories to create the married category and the divorced, separated, widowed, never married, and unmarried at time of death categories to create the unmarried category.

Analysis

The dependent measure in this investigation was the number of deaths in each death type (suicidal, accidental, homicidal, and natural). A one-way chi square analysis was used to test

the main effect of the independent variables: sex, employment status, marital status, and year. The expected frequencies for the one-way chi square analyses were tested against a null hypothesis of equal distribution in the population. A two-way contingency table was used to test each interaction effect.

Results

Hypothesis 1 - Sex Main Effect

As expected, males had a higher rate of mortality than females and this difference was statistically significant in every death type. In suicidal deaths, 118 (69.1%) were males while only 53 (30.9%) were females, $\chi^2 (1) = 24.70$, $p < .001$. Males accounted for 319 or 73.5% of the accidental deaths while females accounted for 115 or 26.5% of the accidental deaths, $\chi^2 (1) = 95.89$, $p < .001$. Homicidal deaths followed a similar pattern: 128 males constituted 77.6% of the homicides and 37 females accounted for 22.4%, $\chi^2 (1) = 50.19$, $p < .001$. In natural deaths, 512 males constituted 65.3% of all the deaths and 272 females constituted 34.7%, $\chi^2 (1) = 73.47$, $p < .001$. These last figures, unlike those of suicidal, accidental, and homicidal deaths, cannot be said to be representative of the total deaths in the population since only certain of the county's natural deaths are investigated by the medical examiner.

Hypothesis 2 - Year Main Effect

As expected, there was a statistically significant increase in deaths from 1970 to 1980 for suicidal, accidental, and natural deaths. However, no significant difference was found for homicidal deaths.

There was a 100% increase in suicidal deaths from 1970 to 1980 (57 in 1970 and 114 in 1980), $\chi^2 (1) = 19.00$, $p < .001$.

A 33.3% increase was observed in accidental deaths over the decade (186 in 1970 and 248 in 1980), $\chi^2 (1) = 8.86$, $p < .01$. Natural deaths increased 175% from 1970 to 1980 (209 in 1970 and 575 in 1980), $\chi^2 (1) = 170.86$, $p < .001$. This was partially due to increased staff and funding at the morgue which allowed the morgue to handle more natural deaths in 1980 (100% of other death types had always been investigated):

Hypothesis 3 - Marital Status Main Effect

As hypothesized, unmarried persons had a higher rate of mortality than married persons and this difference in rate was statistically significant in every death type. Unmarried persons accounted for 101 or 59.8% of the suicidal deaths while 68 or 40.2% of the persons who committed suicide were married, $\chi^2 (1) = 6.44$, $p < .02$. There was an even larger difference between married persons (153 deaths or 36.3%) and unmarried persons (269 deaths or 63.7%) in accidental deaths, $\chi^2 (1) = 31.89$, $p < .001$. A similar pattern was found for homicidal deaths, in which married persons accounted for 62 or 38.5% of the deaths and unmarried persons accounted for 99 or 61.5% of the deaths, $\chi^2 (1) = 8.50$, $p < .01$. In natural deaths, the difference was not as great between married persons (354 deaths or 45.9%) and unmarried persons (417 deaths or 54.1%), but the difference was still significant, $\chi^2 (1) = 5.15$, $p < .05$.

Hypothesis 4 - Employment Status Main Effect

The hypothesis on employment was supported only in suicidal

deaths, in which employed persons (50 deaths or 30.3% of suicides) had lower rates of mortality than unemployed persons (115 deaths or 69.7% of suicides), $\chi^2 (1) = 25.61$, $p < .001$. The same pattern was observed in natural deaths in which 157 or 21.1% of the persons who died a natural death were employed at the time of their death while 589 or 78.9% were unemployed, $\chi^2 (1) = 250.17$, $p < .001$.

Although there was no significant difference between employed and unemployed persons in accidental deaths, it should be noted that employed persons accounted for 218 (53.7%) of the accidental deaths while unemployed persons accounted for 188 (46.3%) of these deaths. This is the opposite of the predicted pattern. However, a closer examination of the data shows this converse pattern to be true only for males (see Hypothesis 9 results); females followed the hypothesized pattern.

In homicidal deaths, employed persons accounted for 94 (66.7%) of the homicides while unemployed persons accounted for 47 (33.3%) of these deaths. Employed persons had a higher rate of mortality for both males and females and the difference was statistically significant, $\chi^2 (1) = 15.67$, $p < .001$.

Hypothesis 5 - Sex X Year Interaction Effect

This hypothesis was supported only in suicidal deaths, $\chi^2 (1) = 4.94$, $p < .03$. These data are presented in Figure 1. As predicted, the sex differential in mortality was increased in suicidal deaths from 1970 to 1980 in favor of females. In

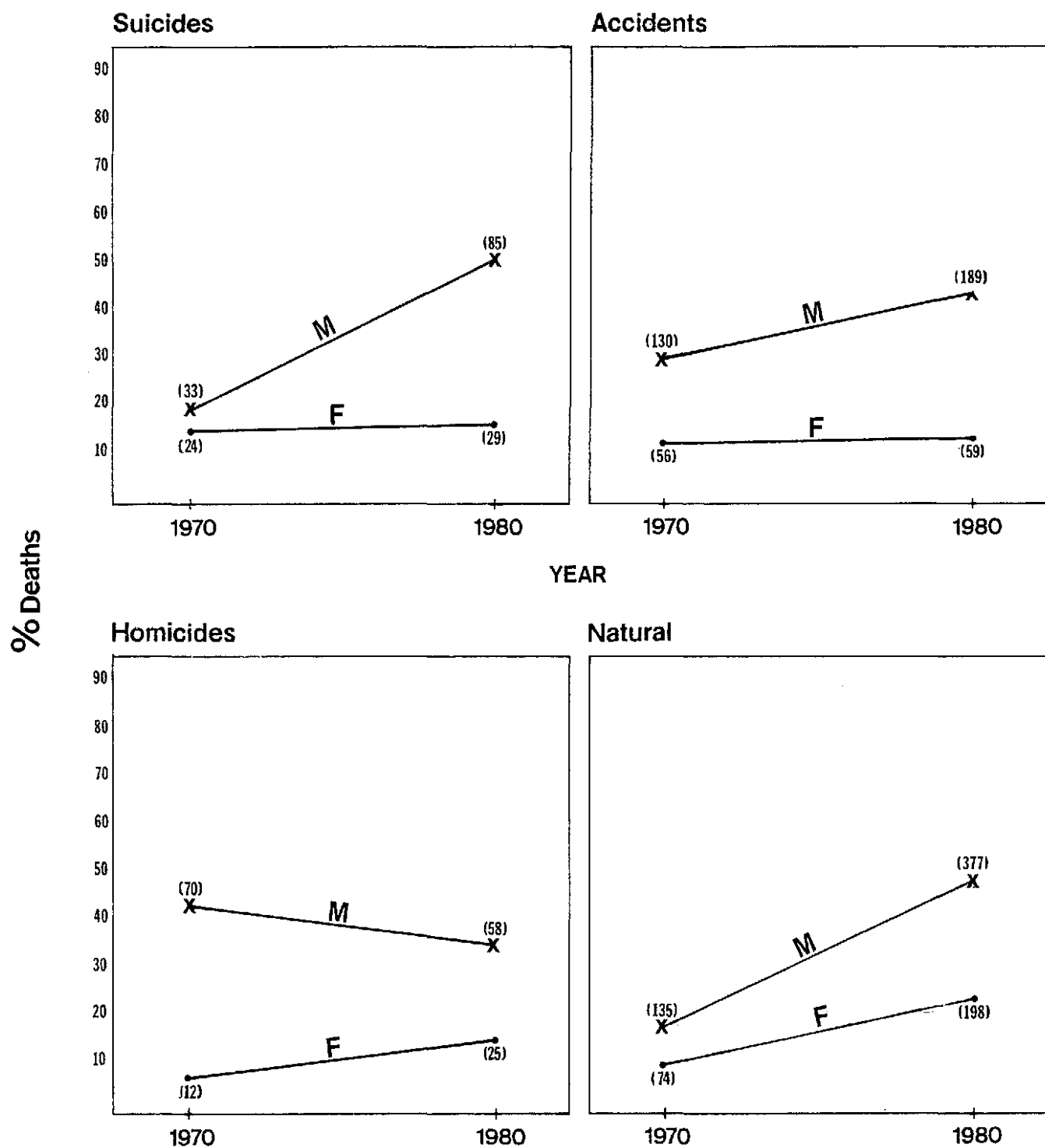


Figure 1

Sex X Year Mortality Rates

* Numbers in parentheses are actual frequencies.

1970, males had 1.4 times as many suicides as females but by 1980, males had almost three times as many suicides as females.

A similar pattern was observed for accidents, even though the results were not statistically significant. In 1970, males had 2.3 times as many accidents as females; while in 1980, males had 3.2 times as many accidents as females.

A different pattern was found in homicides, in which male deaths decreased and female deaths increased from 1970 to 1980, $\chi^2 (1) = 5.69$, $p < .02$. Although males had more homicidal deaths than females in both 1970 and 1980, the difference between the two decreased over the decade. In 1970, males had approximately 5.8 times as many homicides as females. In 1980, however, males had only 2.3 times as many homicides as females. Over the decade, male homicidal deaths decreased 20.7% while females increased 108%.

The proportions of male and female deaths remained relatively stable in natural deaths from 1970 to 1980, $\chi^2 (1) = .064$, $p = .80$. Males had 1.8 times as many deaths as females in 1970 and 1.9 times as many deaths in 1980.

The mean ages at death for females and males across all death types in 1970 were 47.34 and 44.03, respectively. Females lived an average of 3.3 years longer than males that year. In 1980, the mean ages at death for females and males were 55.43 and 49.65, respectively. Females lived an average of 5.8 years

longer than males in 1980. The gap between the mean ages of males and females increased another 2.5 years in the last 10 years.

Hypothesis 6 - Marital Status X Year

This hypothesis was supported for suicidal, accidental, and homicidal deaths. These data are presented in Figure 2. As expected, unmarried persons in 1980 had a higher rate of mortality than either unmarried persons in 1970 or married persons in 1970 and 1980 in these death types. The results were not statistically significant in natural deaths.

The difference by marital status over the decade for suicides was statistically significant, $\chi^2 (1) = 5.50$, $p < .02$. The difference between married persons and unmarried persons in 1970 was relatively small (17.7% and 16.0%, respectively), while in 1980 the difference was much greater (22.5% and 43.8%, respectively).

The hypothesized difference was even greater for accidental deaths and it was also statistically significant, $\chi^2 (1) = 11.58$, $p < .0007$. When considering all accidental deaths, married and unmarried persons in 1970 accounted for 19.7% and 23.7% of the deaths, respectively, while married and unmarried persons in 1980 accounted for 16.6% and 40.1%, respectively.

The pattern of homicidal deaths according to marital status over the decade was also statistically significant, $\chi^2 (1) = 4.86$, $p < .03$. In 1970, 23.6% of the homicides were married

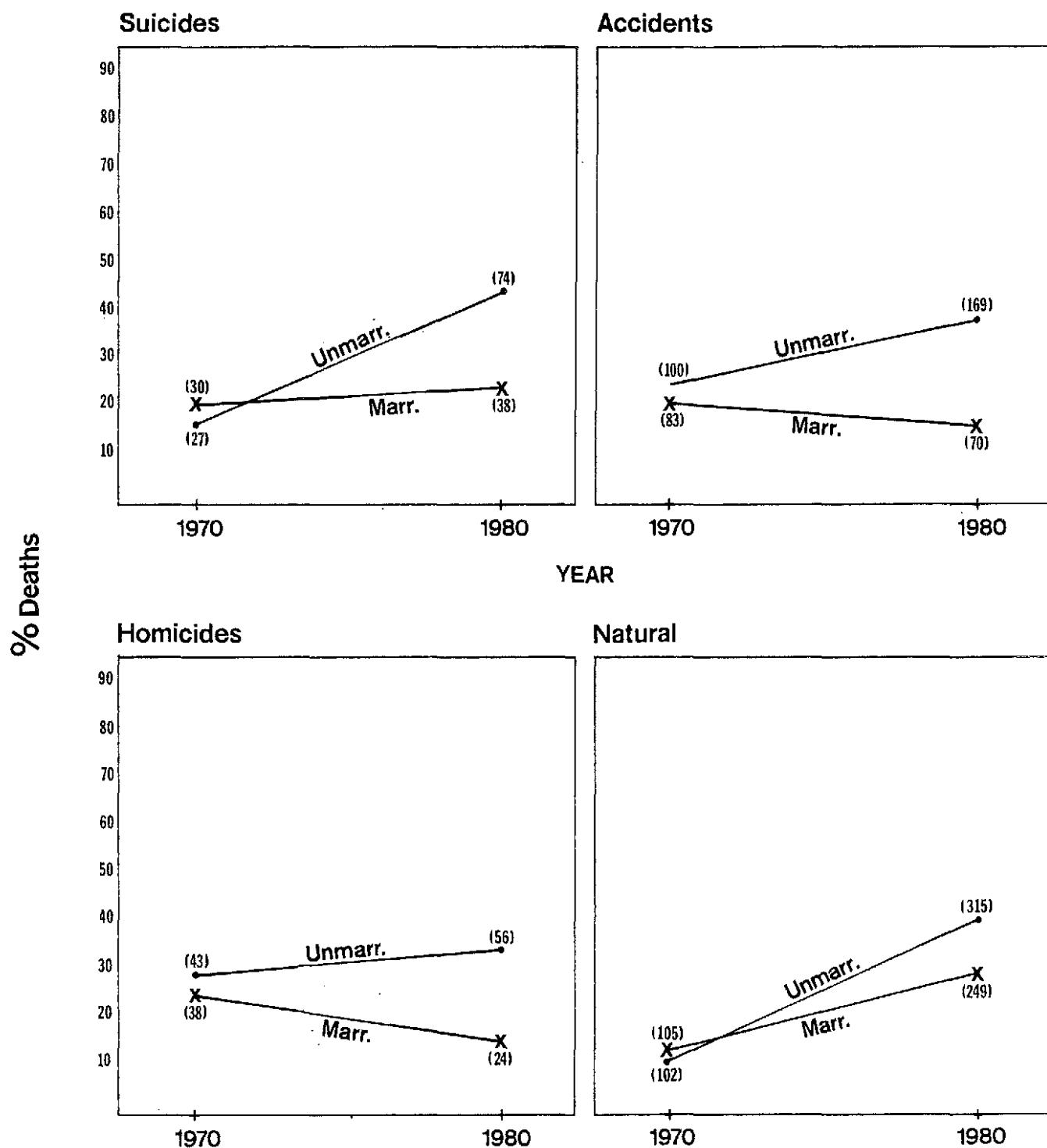


Figure 2

Marital X Year Mortality Rates

* Numbers in parentheses are actual frequencies.

persons and 26.7% were unmarried, while in 1980, 14.9% of these deaths were married persons and 34.8% were unmarried.

Hypothesis 7 - Employment Status X Year Interaction Effect

There was no significant difference in the deaths of employed and unemployed persons over the decade for suicidal, accidental, or natural deaths. These data are presented in Figure 3. There was, however, a statistically significant difference according to employment status over the decade for homicidal deaths, $\chi^2 (1) = 6.33, p < .02$. Employed persons decreased from 34.8% of homicides in 1970 to 31.9% in 1980. Unemployed persons increased from 9.9% of homicides in 1970 to 23.4% in 1980, thereby narrowing the gap between employed and unemployed persons in 1980 for homicidal deaths.

Hypothesis 8 - Sex X Marital Status Interaction Effect

This hypothesis was supported for suicidal deaths and tentatively supported for accidental deaths. These data are presented in Figure 4. Marital factors appeared to be more related to male than female accidents and suicides. The hypothesis was not supported in homicidal deaths, in which unmarried persons, regardless of sex, had more homicides than married persons.

There was a statistically significant difference between males and females according to marital status for suicidal deaths, $\chi^2 (1) = 5.09, p < .03$. As expected, unmarried males had more suicidal deaths (45.0%) than either married males (23.7%), married

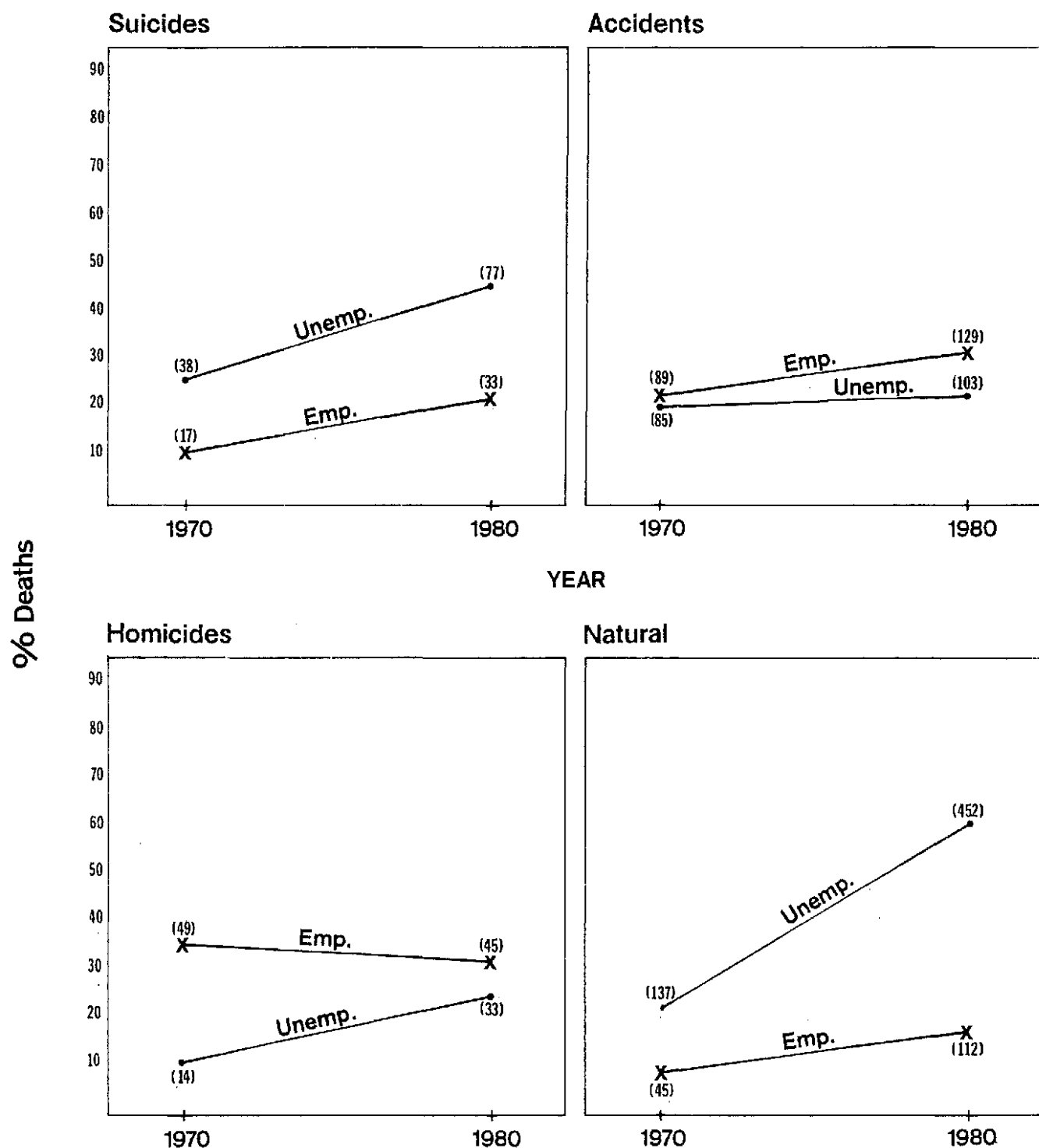


Figure 3

Employment X Year Mortality Rate

* Numbers in parentheses are actual frequencies.

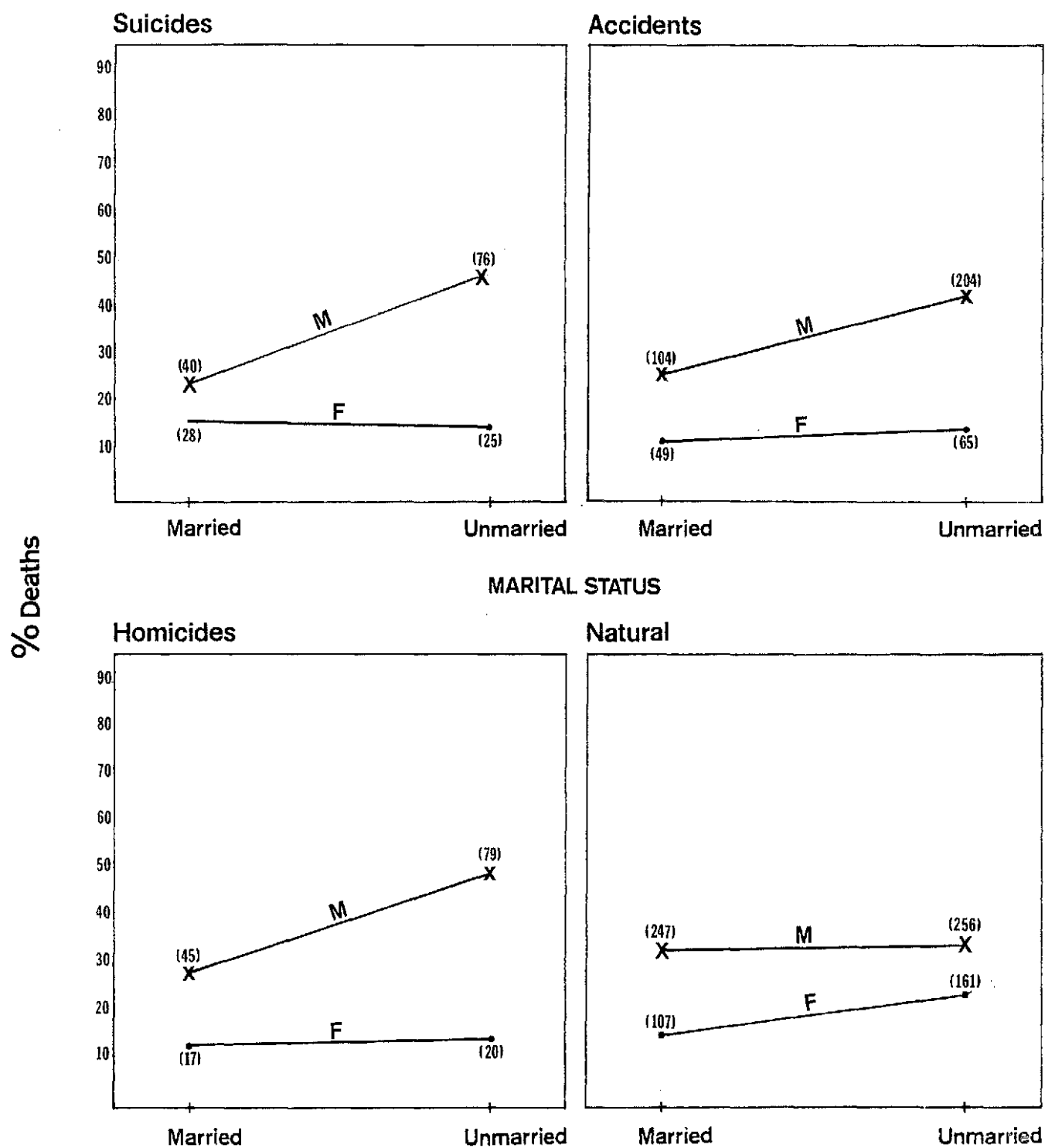


Figure 4

Sex X Marital Mortality Rates

* Numbers in parentheses are actual frequencies.

females (16.6%), or unmarried females (14.8%).

There was a tendency for the Sex X Marital Status effect to be significant in accidents, $\chi^2 (1) = 3.66$, $p = <.08$. Unmarried males accounted for 48.3% of accidental deaths while married males accounted for 24.6%. Married and unmarried females accounted for 11.6% and 15.4%, respectively, of accidental deaths.

For homicidal deaths, there was no significant difference between married and unmarried persons according to sex. Both unmarried males and females had a higher rate of homicidal deaths than their married counterparts.

The Sex X Marital Status effect was significant for natural deaths, $\chi^2 (1) = 5.93$, $p <.02$. There was little difference between married males who accounted for 49.1% of natural deaths and unmarried males who accounted for 50.9%. There was a substantial difference between married females who composed 39.9% of natural deaths and unmarried females who composed 60.1%.

It should be noted that married males had significantly fewer suicidal, $\chi^2 (1) = 11.17$, $p <.001$, accidental $\chi^2 (1) = 32.46$, $p <.0001$, and homicidal deaths, $\chi^2 (1) = 9.32$, $p <.01$ than unmarried males. No significant difference was found for natural deaths according to marital status. Married females had significantly fewer natural deaths than unmarried females, $\chi^2 (1) = 10.88$, $p <.001$. No significant differences were found for females according to marital status for the other death types.

Hypothesis 9 - Sex X Employment Status Interaction Effect

This hypothesis was supported for suicidal and accidental deaths. These data are presented in Figure 5. Employed females had fewer suicidal and accidental deaths than any other group and the relationship was statistically significant in both death types. The hypothesis was not supported for homicidal deaths.

When considering all suicidal deaths, only 5.4% of those deaths were employed females and 26.1% were unemployed females. Employed males and unemployed males composed 24.9% and 43.6% of the suicidal deaths, respectively, $\chi^2 (1) = 6.07, p < .02$.

Employment is positively related to male accidental deaths and inversely related to female accidental deaths, $\chi^2 (1) = 12.19, p < .0005$. Employed females accounted for 10.3% of the accidental deaths, while unemployed females accounted for 16.0%. Employed males accounted for 43.4% of the accidental deaths and unemployed males accounted for 30.3%.

The Sex X Employment Status effect was also significant for natural deaths, $\chi^2 (1) = 34.15, p < .0001$. Employed females accounted for only 3.3% of the natural deaths. Employed males, unemployed females, and unemployed males followed with rates of 17.7%, 32.4%, and 46.5%, respectively.

It should be noted that employed females had significantly fewer suicidal, $\chi^2 (1) = 22.23, p < .0001$, accidental, $\chi^2 (1) = 4.94, p < .05$, and natural deaths, $\chi^2 (1) = 176.36, p < .0001$ than unemployed females, while no difference was found for homicidal

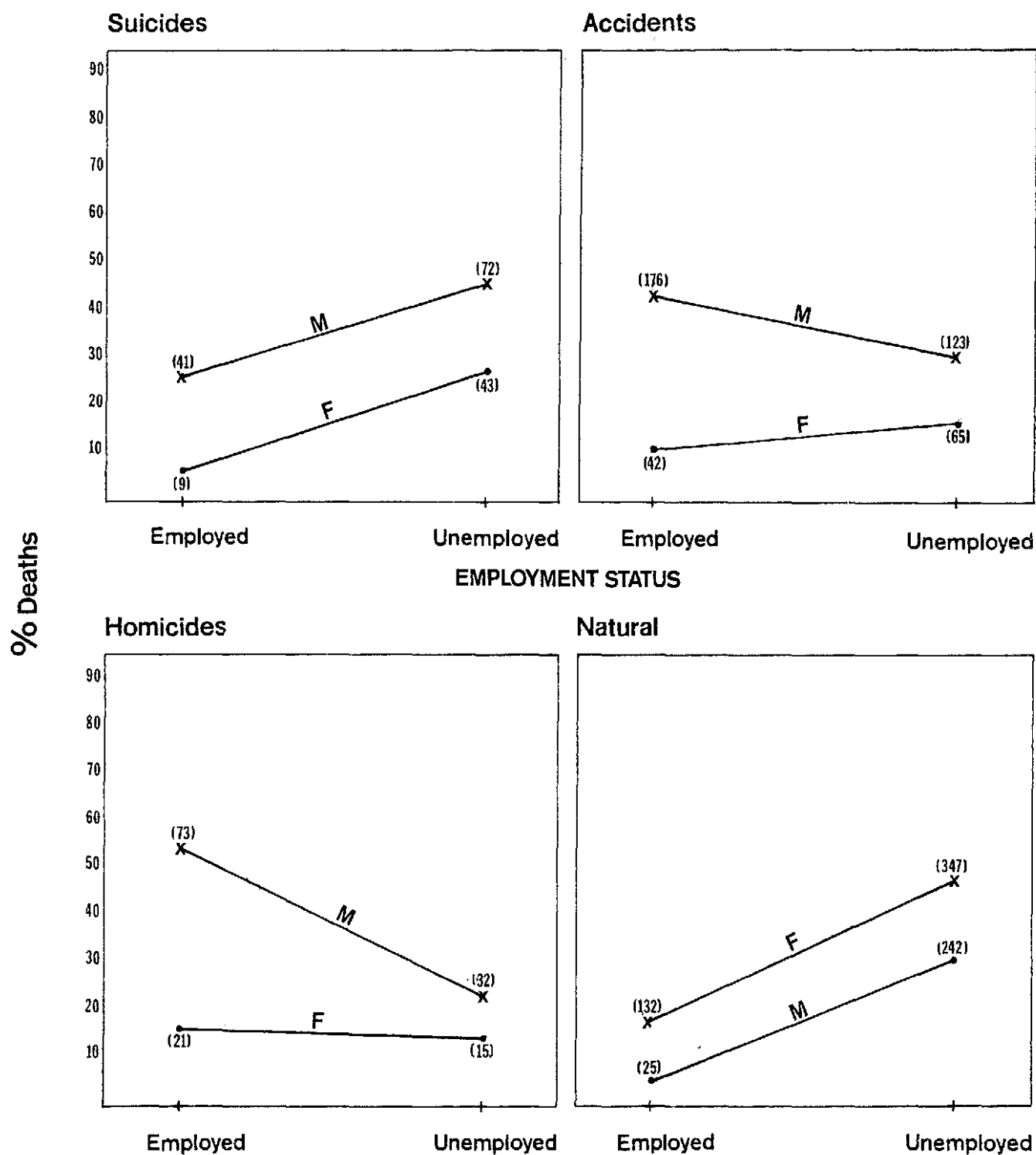


Figure 5

Sex X Employment Mortality Rates

* Numbers in parentheses are actual frequencies.

deaths according to employment status. Employed males had significantly fewer suicidal, $\chi^2 (1) = 8.50$, $p < .01$, and natural deaths, $\chi^2 (1) = 96.50$, $p < .0001$ than unemployed males. Employed males had significantly more accidental, $\chi^2 (1) = 9.39$, $p < .01$, and homicidal deaths, $\chi^2 (1) = 16.00$, $p < .001$ than unemployed males.

Hypothesis 10 - Marital Status X Employment Status Interaction Effect

There was no statistically significant Marital Status X Employment Status effect for suicidal deaths. These data are presented in Figure 6.

The Marital Status X Employment Status effect was highly significant for accidental deaths, $\chi^2 (1) = 15.98$, $p < .0001$. The unmarried-unemployed group (34.6% of all accidents) had the highest mortality rate, while the married-unemployed group had the lowest rate (12.0%). The unmarried-employed group and the married-employed group had rates of 29.3% and 24.1% respectively.

A significant Marital Status X Employment Status effect was also found for homicidal deaths, $\chi^2 (1) = 5.38$, $p < .03$. The unmarried-employed group of subjects had the highest mortality rate (36.2%), followed by the married-employed group (30.5%), the unmarried-unemployed group (24.8%), and the married-unemployed group (8.5%).

The Marital Status X Employment Status effect was statistically significant for natural deaths, $\chi^2 (1) = 8.74$, $p < .004$. The

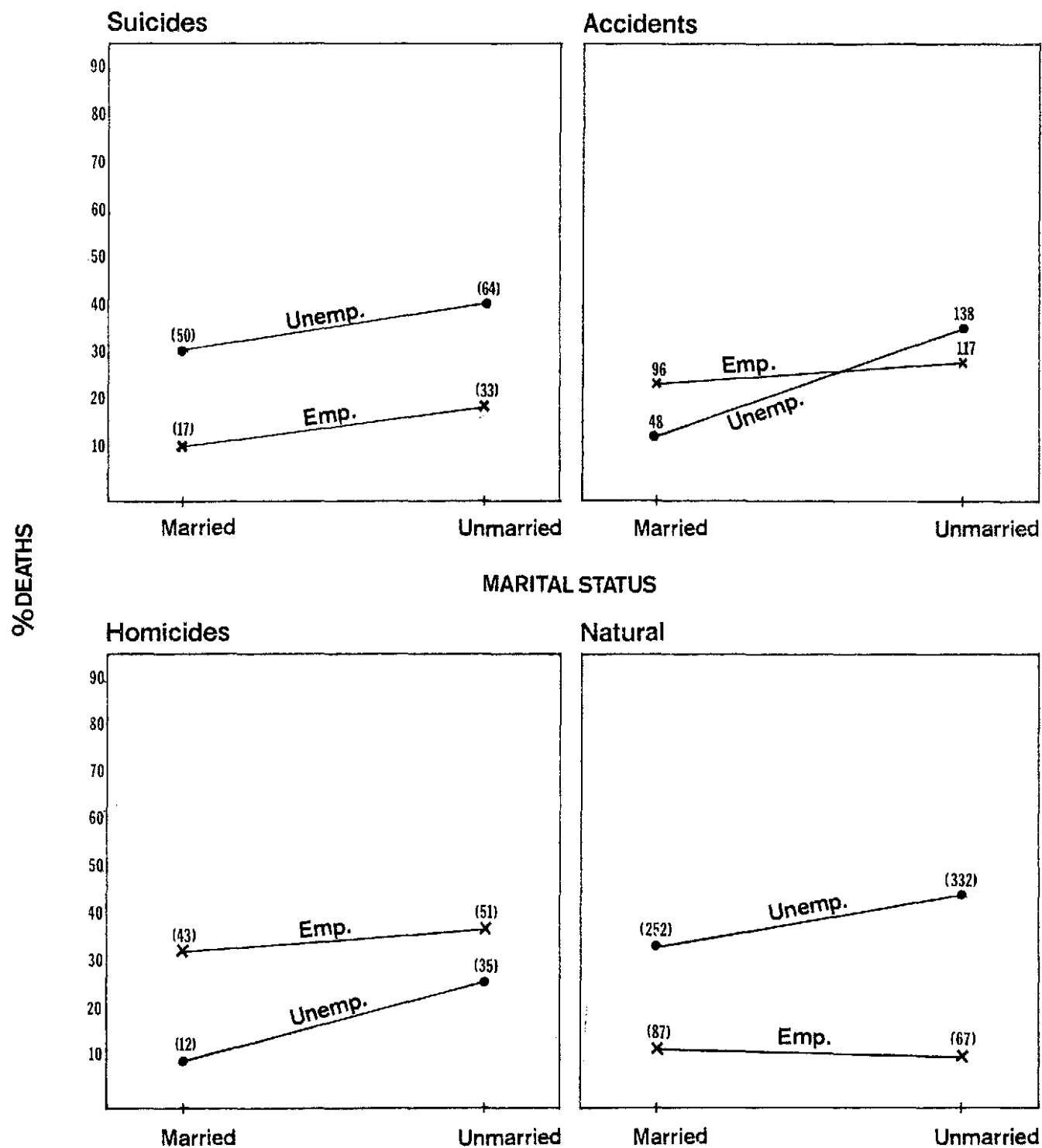


Figure 6

Marital X Employment Mortality Rates

* Numbers in parentheses are actual frequencies.

unmarried-unemployed group had the highest mortality rate in natural deaths with a rate of 45.0%, followed by the married-unemployed group (34.1%), the married-employed group (11.8%), and the unmarried-employed group (9.1%).

Discussion

The evidence presented in this study indicates that marital and employment factors have a different relationship to male mortality rates than to female mortality rates in certain types of death. In addition, it is possible that marital and employment factors have a relationship to the expanding sex differential in mortality. A discussion of the rationale for these assumptions and some feasible explanations for the results obtained in this study will now be presented.

Males had a higher rate of mortality than females in every death type. It seems reasonable, in view of the premature mortality that is the focus of this study, to rule out the biological explanations that frequently have been offered for the sex differential in mortality rates in previous literature. It is acknowledged that biological factors might play some role in natural deaths, but sociocultural factors such as marital status and employment status seem both logical and relevant in a discussion of premature death.

The present study showed that employed females had substantially fewer suicidal and accidental deaths than unemployed females. These findings lend further support to previous research which found employment to be positively related to female health and happiness. One would logically expect employed females to have a higher accident rate than unemployed females because of their greater travel, exposure, etc. The fact that employed females actually had a lower

accidental death rate, as well as a lower suicide rate, calls into question the allegations by Wright (1978), Darley (1976) and others that the dual role (career and domestic duties) is more hazardous, more stressful, and less satisfying than the housewife role. It is possible that the previously cited benefits of increased social ties, greater independence, and stronger feelings of competence help decrease mortality rates for employed females. It is also possible that greater economic security plays a role.

If the above explanations were valid for females, why is there a less favorable relationship between employment and mortality for males, who should be equally affected by such factors as increased social ties, stronger feelings of competence, etc.? When using sex as a baseline, it was seen that employed males had 27% fewer suicides than unemployed males, but employed females had 65% fewer suicides than unemployed females. For accidental deaths, employed males had 18% more deaths than unemployed males while employed females had 22% fewer deaths than unemployed females. One possible explanation for this discrepancy between males and females is the previously discussed problem of males being locked into rigid and uncompromising career-oriented sex roles (e.g. Pleck, 1976; Ellul, 1964), which negate for them the positive effects of employment. Men, unlike some women, have no socially acceptable choice to employment. They must work whether or not they desire employment. Much of their time and effort must be devoted to the job endeavor. Career success "makes the man." Career failure is devastating.

Perhaps, as Pleck suggested, men need less emphasis on work to be happy and healthy.

Another feasible explanation for the unfavorable relationship of employment to male accidental deaths that was found in this study (in contrast to the favorable relationship that was found for females) is that males are more likely to have physically dangerous jobs than females. The majority of females continue to occupy traditionally female occupations which are relatively safe in comparison to many predominately male vocations such as construction, policework, firefighting, etc. It is difficult to discern, however, the extent to which unnecessary recklessness or carelessness, possibly incited by role dissatisfaction, unhappiness, or other factors, might have abetted these accidental deaths. It has been demonstrated previously that accidents are related to a variety of social factors (e.g. Verbrugge, 1976 and others). It therefore seems unlikely that the relatively simplistic explanation of differential hazard would totally account for the discrepancy in male and female accidental deaths according to employment status.

The stress in types of jobs that males occupy could also be offered as an explanation for the discrepancy between male and female suicide rates according to employment. It is possible that males have more demanding jobs than females which cause them more emotional stress and strain. Males are more likely to have executive and managerial positions than females. Perhaps the added strain of these types of jobs negates any possible benefits

from employment for men. It is likely, however, that the strain of executive positions is exacerbated by the traditional male sex roles which make career success so paramount for self-esteem. It is possible that females feel considerably less pressure to succeed in their occupations than males. This idea is supported by the Tung (1980) research which suggested that female administrators experience significantly less stress than their male colleagues.

The evidence presented in this study also indicates a large discrepancy in the relationships of male and female suicidal and accidental death rates according to marital status. When using sex as a baseline, it was found that unmarried males had 31% more suicides than married males but unmarried females had 6% fewer suicides than married females. The unmarried state appears to be positively related to high suicide rates for men, while there is no relationship between marital status and suicide rates for women. A similar pattern was obtained for accidental deaths: unmarried males had 33% more deaths than married males while unmarried females had only 14% more deaths than married females. It should be noted that the Sex X Marital effect was only marginally significant in accidents, which limits the certainty with which one can make deductions about this relationship. Combined, these findings offer some support to Gove's (1973) results which suggested that marriage was more beneficial to males than to females.

One possible explanation for the discrepancy between the sexes in mortality rates according to marital status is that male

sex roles have prevented men from adequately preparing themselves to accomplish the domestic tasks that are necessary for survival when a man lives alone. Another explanation is the possibility that unmarried females maintain more personal relationships than unmarried males, thereby meeting Durkheim's (1951) and Kobrin and Hendershot's (1977) criteria for social integration outside of marriage. Perhaps women, regardless of marital status, have quieter life styles and are less reckless than men (particularly unmarried men), due to traditional sex roles.

Retherford (1975) suggested that cigarette smoking might confound the results of any study of male and female mortality in relation to marital factors. However, this theory seems to be refuted for the present study for several reasons. One, it is unlikely that smoking would have any direct effect on the premature mortality which is the object of this study. Also, previously cited evidence (Department of Health, Education & Welfare, 1975) indicated that smoking behavior had become relatively equalized for American males and females by 1970. Sociocultural interpretations appear more reasonable in the current study.

It seems possible, in view of present evidence, that marital and employment factors have a joint relationship to sex differences in some types of mortality. This notion is supported by the fact that a significant Marital Status X Employment Status effect was found for accidental, homicidal, and natural deaths.

It is recognized that all the previously offered explanations

regarding the relationship of employment and marital factors to mortality rates are conjectural. But it should be noted that sex role factors play an integral part in almost all of these explanations. It would be difficult to elucidate the relationships found in this study without including a discussion of sex role factors. The necessity for continued evaluation of the effects of the traditional male sex role on the well being of males and the effects of the changing female sex roles on the well being of both males and females, seems obvious.

Based on the previously discussed evidence found in this study that being unmarried is positively related to male suicidal and accidental death rates (while having little relationship to female suicidal and accidental rates), it seems reasonable to expect an increase in male suicidal and accidental death rates from 1970 to 1980 since the divorce rate burgeoned during that time period. Such an increase was in fact observed for males in both suicidal and accidental deaths. However, the Sex X Year effect for accidental deaths was not significant and only tenuous conclusions can be drawn for this death type. It is almost certain many accidents are entirely unforeseeable and unpreventable. Therefore these accidents would not be affected by social factors, thereby reducing the overall effect of social factors on accidental deaths over the decade.

Likewise, based on evidence that being employed is negatively related to female suicidal and accidental death rates (while having

a less negative relationship to male suicide rates and a positive relationship to male accident rates) it seems reasonable to expect a negative relationship between the dramatic increase in the number of females who entered the labor force from 1970 to 1980 and female mortality rates during that time period. However, the results of this study show that female accidental and suicidal deaths remained relatively stable over the 1970 to 1980 decade. It seems plausible that the 10.1% increase in female population for Duval County from 1970 to 1980 may have counteracted an employment effect on female suicidal and accidental deaths. Nevertheless, the fact that female rates did not increase would indicate that the dramatic increase in employed females from 1970 to 1980 did not exacerbate the female mortality rate over time, as was predicted by some researchers (e.g. Mushkin, 1979; Verbrugge, 1976). When taking into account both population growth and the simultaneous increase in male mortality over the decade (more than could be accounted for by the 5.7% increase in male population), one might maintain that, relative to males, employment had a favorable relationship to female mortality rates over the decade.

The relationships of homicidal mortality rates to employment and marital status are inconsistent and enigmatical. Very few of the predicted results were observed.

Employed persons had a higher rate of homicidal deaths than unemployed persons. This was true for both males and females, contrary to the predictions that employed females would have fewer homicidal deaths than unemployed females (in addition to employed

and unemployed males). Even though the difference between employed and unemployed females was slight, it is congruent with the finding that female homicides have increased from 1970 to 1980 since there was a concurrent increase in employed females in the general population.

It is interesting to note that the total number of homicides in 1970 is approximately equal to the total number in 1980. Only the proportion of male and female victims has changed. The decrease in male homicides over the decade is difficult to interpret, particularly when considering the relationships between marital status and homicide rates found in the current study. Unmarried persons had a higher rate of homicidal deaths than married persons. Therefore, it would seem that the documented increase in unmarried persons from 1970 to 1980 would be associated with an increase in homicide rates. This increase was observed for females, but the simultaneous decrease in male homicides seems incongruent.

The results concerning the relationship of marital factors to homicide rates seem contradictory. The need for further study regarding the relationships of marital and employment status to homicidal mortality seems apparent. However, the failure to find a significant relationship in either the Sex X Marital or the Sex X Employment effects for homicidal deaths suggests that marital and employment factors are relatively inconsequential to the observed sex differences in homicidal mortality.

Natural deaths were treated differently in this study and the results for this death type must be discussed with several key facts

in mind. First, the medical examiner's office investigated only certain unattended or suspicious natural deaths and these deaths cannot be regarded as representative of the total deaths in the population. In contrast, 100% of suicidal, accidental, and homicidal deaths were investigated. Secondly, persons who died natural deaths were more likely to be older than those who died a premature death. These older persons were more likely to be unemployed and unmarried at the time of their deaths since they had a greater chance to live to retirement and to outlive their spouses than persons who died prematurely. It is likely that some of the relationships noted in the results for natural deaths were indeed affected by marital and employment factors but many of these people probably died as a result of an expected conclusion to a long life. It becomes extremely difficult to interpret the relationships of marital and employment status to sex differences in natural mortality. Discerning the natural deaths that were and were not affected by social factors was not a reasonable undertaking in this study.

There are many questions that have not been answered by this research. For one, it is not known how much of the apparently favorable relationship of employment for females in suicides and accidents is due to the employment itself or the choice of roles per se. In this study, there is no way to assess whether employment was a freely made choice or an economic necessity. Nevertheless, it is assumed that at least for some women employment was chosen, especially in the late 1970's when it was becoming more socially acceptable to

work. It is recognized, however, that for many women working is not a choice, particularly unmarried ones. It would therefore be interesting to investigate the difference in mortality, health, and happiness in women for whom working is truly a choice and those for whom it is an economic necessity.

Another area inviting research is the effect of different types of occupations on women's mortality rates. It is possible that the findings of this study might vary across occupational groups.

In summary, male mortality rates exceeded female rates in every death type and the sex differential increased from 1970 to 1980 in every death type except homicides. The findings in this study suggest that marital and employment factors contribute to sex differences in mortality, at least for suicidal and accidental deaths. Being employed was associated with fewer suicidal and accidental deaths for females than for males. Being married was associated with fewer suicidal and accidental deaths for males, while marital status had no relationship to suicidal and accidental death rates for females. Due to the aforementioned relationships it might be inferred that the expanding sex differential in suicidal and accidental mortality rates from 1970 to 1980 is associated with the spiraling divorce rate and the dramatic increase in female employment during the decade.

The relationship of marital and employment status to homicide rates seem complex and ambiguous. Results appear contradictory and do

not offer support for the hypothesis that marital and employment factors contribute to the observed sex differences in homicidal death rates.

In combination, the findings of the present study suggest that increasing concern is warranted regarding the relationships of the traditional career-oriented male roles and the unprecedented breakdown of marriages to male health and well being. The results also suggest that the changing roles of women, as illustrated by their increased participation in the labor force, do not support the fears previously expressed by some investigators that increased employment would have a detrimental influence on female health and well being. However, caution is warranted about premature conclusions regarding the negative relationship of female employment to their mortality rates. Females are relatively new in the competitive job market and the types of occupations they are securing is gradually changing. Longer periods in the labor force might begin to change this favorable relationship, especially if economic and social variables begin to make employment for most women more of a requirement than a choice.

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Appendix I

Census Data

The following data were revised to reflect the latest census figures. Information is disclosed that was unavailable at the time the body of the paper was written. Additional county and state data will be noticed. Also slight variations in employment figures quoted from the U. S. Department of Labor will be observed. The data were collected or computed from currently available census data (U. S. Bureau of the Census 1972a, 1972b, 1982a, 1982b, 1982c, 1983a, 1983b). Employment data was computed by dividing the number of males or females aged 16 and over who were listed in the labor force at the time of census data collection by the total number of males or females aged 16 and over in the population. Divorce rates were computed by dividing the number of currently divorced persons (at the time of the census data collection) by the total number of persons ever married (including divorced, separated, widowed and married). All 1970 marital data include persons aged 14 and over while all 1980 data reflect persons aged 15 and over.

Population DataUnited States

<u>1970</u>	Total	203,235,298
	Males	98,926,204
	Females	104,309,094
<u>1980</u>	Total	226,504,825
	Males	110,032,295
	Females	116,472,530

<u>Florida</u>			
<u>1970</u>	Total		6,789,383
	Males		3,274,971
	Females		3,514,412
<u>1980</u>	Total		9,746,324
	Males		4,675,626
	Females		5,070,698
<u>Duval County</u>			
<u>1970</u>	Total		528,865
	Males		259,982
	Females		268,883
<u>1980</u>	Total		571,003
	Males		275,049
	Females		295,954

Employment Data

Percent in labor force (aged 16 and up)
per same sex population.

<u>United States</u>	Females	Males
<u>1970</u>	43.4%	80.6%
<u>1980</u>	51.6%	77.9%
<u>Florida</u>		
<u>1970</u>	39.1%	69.5%
<u>1980</u>	45.8%	69.5%
<u>Duval County</u>		
<u>1970</u>	43.8%	80.7%
<u>1980</u>	51.5%	82.9%

Marital Data

Percent of divorced persons per ever
married population.

<u>United States</u>	
<u>1970</u> (aged 14+)	4.4%
<u>1980</u> (aged 15+)	8.6%
<u>Florida</u>	
<u>1970</u> (aged 14+)	5.3%
<u>1980</u> (aged 15+)	9.6%
<u>Duval County</u>	
<u>1970</u> (aged 14+)	6.1%
<u>1980</u> (aged 15+)	12.4%

Appendix II

MEDICAL EXAMINER SURVEY

Date of death: _____

Nature of death: 1. accident 2. suicide
3. natural/undetermined 4. homicide _____Nature of suicide: 01 barbituarate
02 other drug/chemical
03 plastic bags
04 fire
05 hanging
06 gunshot
07 drowning
08 stabbing/laceration
09 jumping
10 carbon monoxide
11 poison
12 - 98 other _____

Sex: 1. male 2. female _____

Substance causing death: a. m _____
b. _____
c. _____Race: 1. White
2. Black
3. Spanish
4. Oriental
5. American Indian
6. Other _____

Age: _____

Marital status: 1. common law
2. married
3. divorced
4. separated
5. widowed
6. never married _____

Usual occupation: _____

Alcohol content in blood: _____

Liver disease with no alcohol determined at death:
1. yes 2. no _____

Occupation at time of death: _____